# ATTACHMENT C AGRICULTURE AND SOILS MATERIALS

- AGRICULTURE AND SOILS
  (SECTION 5.4 FROM 99-AFC-7)

## 5.4 AGRICULTURE AND SOILS

### 5.4.1 Affected Environment

The Pastoria Energy Facility (PEF) project, including the power plant site, 230 kV transmission line, offsite pipelines, and access road is located in the southwest portion of Kern County, California (refer to Figure 3.2-1 and Map 3.2-1), approximately 30 miles south of Bakersfield.

The project area is located in what is known by soil scientists and agronomists as the Sacramento and San Joaquin Valleys Subregion of the California Subtropical Fruit, Truck, and Specialty Crop Region (U.S. Soil Conservation Service [SCS], 1981a). The Sacramento and San Joaquin Valleys region is comprised primarily of farms and ranches with the remaining area used as urban development. Approximately half of this subregion is cropland, the majority of which is irrigated. This subregion contains more than half of the cropland in California.

The project region contains nearly level to moderately steep soils on alluvial fans, flood plains, and stream terraces on the southeastern portion of the San Joaquin Valley next to the Tehachapi Mountains (SCS, 1981b).

The region has a long growing season and low to moderate precipitation. Precipitation primarily occurs from mid-fall to mid-spring. Summers are long, hot, and dry; winters are cool and rainy. Natural vegetation in the project region includes grasses, brush, and trees.

The affected environments for the soil resource and agriculture are described in Sections 5.4.1.1 and 5.4.1.2, respectively.

#### 5.4.1.1 Soil Resource

The soil resource information presented in this section is based primarily on the Soil Survey of Kern County, California, Southeastern Part (SCS, 1981b). Additionally, soils information for the westernmost portion of the study area was obtained from unpublished excerpts from the Southwest Kern County Soil Survey (NRCS, 1999a). The SCS is now known as the Natural Resource Conversation Service (NRCS).

The predominant soils in the study area are sandy loam, fine sandy loam, gravelly sandy loam, and sandy clay loam soils. Representative soils in the project area include the Hesperia sandy loam (soil mapping unit 146) and Pleito-Chanac sandy clay loam (162) (SCS, 1981b). The Hesperia sandy loam is comprised of very deep, well-drained sandy loam soils with moderately rapid permeability, slow runoff, and low shrink-swell potential. This soil occurs on sloping alluvial fans and formed in alluvial material derived from granitic rock.

The Pleito-Chanac sandy clay loam soil is very deep, well drained and occurs on moderately steep alluvial fans and old terraces. The Pleito soil has slow permeability, rapid runoff, and moderate shrink-swell potential. The Chanac soil has moderately slow permeability, rapid runoff, and moderate shrink-swell potential.

The Hesperia sandy loam and Pleito-Chanac sandy clay loam soils generally exhibit low to moderate susceptibility to water and wind erosion. Excessive cattle grazing and/or over-irrigation can substantially increase the erosion hazard of these soils. The hazard of erosion is increased when vegetation is removed and the soil surface is left barren.

The soil types identified for the Pastoria Energy Facility project components (i.e., power plant, transmission line, offsite pipelines and access road) are listed in Table 5.4-1 and shown on Map 5.4-1. Soil descriptions are presented in Table 5.4-2. Information on the geology of the project area is presented in Section 5.3 (Geologic Hazards and Resources).

**5.4.1.1.1 Pastoria Energy Facility Plant Site.** The approximate 30-acre power plant site and adjacent 25-acre construction laydown area (refer to Map 3.2-1) are located primarily on an alluvial fan and, to a lesser extent, a recent stream bottom (SCS, 1981b). The project site is relatively flat with a gentle slope of about 4 percent from the southeast (high point) to the northwest. The existing site elevation ranges from about 1,088 feet down to 1,058 feet. Pastoria Creek is located about 1,000 feet west of the site and the creek is the natural drainage path for runoff in the site area. The vegetation on the plant site and adjacent construction laydown area consists of non-native grassland.

Soil mapping units present at the plant site and adjacent construction laydown area consists primarily of Hesperia sandy loam (146) and, to a lesser extent, Psamments-Xerolls complex (165) (refer to Map 5.4-1). The approximate acreages of these soil types, by project component, are presented in Table 5.4-1. The Hesperia sandy loam soil is very deep, well drained, and moderately susceptible to wind and water erosion. The shrink-swell potential is low and the Hesperia sandy loam soil (146) generally has only slight limitations for building site development.

The Psamments-Xerolls complex (165) is very deep, excessively to moderately well drained, with coarse and moderately coarse surface soils. The erosion susceptibility of this soil complex is high for water erosion and low for wind erosion. Flooding is common on portions of this soil type and the prevalence of coarse fragments in the soil surface often limits beneficial uses.

The proposed drainage control berms (refer to Figure 3.1-5 - Site General Arrangement) would also be located primarily on soil mapping unit 146 (Hesperia sandy loam).

**5.4.1.1.2 Transmission Line (Route 1).** The proposed 230 kV transmission line route is approximately 1.38 miles long and traverses soil mapping unit 146, Hesperia sandy loam, as

shown on Map 5.4-1 and listed in Table 5.4-1. The characteristics of this soil type are listed in Table 5.4-2 and are described above (Section 5.4.1.1.1), in the power plant site section.

### 5.4.1.1.3 Offsite Pipelines.

**Route 2-Proposed Water Supply Line.** The proposed water supply line is approximately 0.05 mile long and traverses one soil mapping unit (146), the Hesperia sandy loam. This soil type is very deep, well drained, moderately susceptible to wind and water erosion, and exhibits low shrink-swell potential.

**Route 3-Proposed Fuel Gas Pipeline**. Eleven different soil-mapping units have been identified along this approximately 11.65-mile long proposed fuel gas pipeline route, as shown on Map 5.4-1 and listed in Table 5.4-1. The surface textures of these soils are primarily sandy loams and sandy clay loams and, to a lesser extent, stony and cobbly sandy clay loams. The characteristics of the individual soil mapping units are described in Table 5.4-2. The majority of the soils present along this pipeline route are moderately susceptible to wind and water erosion.

The Vineland-Bakersfield complex soil (mapping unit PxA) occurs between approximately milepost (MP) R3 10.9-11.65 of this route and is highly susceptible to wind erosion.

**Route 3A-Alternate Fuel Gas Pipeline**. Alternate fuel gas pipeline Route 3A is approximately 13.8 miles long. Route 3A is the same as Route 3 (see above) between the power plant site and MP 8.27. Route 3A traverses the soil mapping units traversed by Route 3 plus two additional soils (119 and 201) as listed in Table 5.4-1 and shown on Map 5.4-1. The characteristics of the soils traversed by Route 3A are presented in Table 5.4-2 and are generally consistent with those described above for Route 3.

**Route 3B-Alternate Fuel Gas Pipeline**. Alternate fuel gas pipeline Route 3B is approximately 18.2 miles long. Route 3B is the same as Route 3 between the power plant site and MP 8.27. Route 3B is also comprised of Route 3A between MP 8.27 and 11.9. Route 3B traverses the same soil types as Routes 3 and 3A, plus three additional soil mapping units (127, 139, and 173) as listed in Table 5.4-1 and shown on Map 5.4-1. The characteristics of the soils traversed by Route 3B are presented in Table 5.4-2 and are generally consistent with those described above for Route 3. The Haploxerolls, hilly mapping unit (139) occurs intermittently along Route 3B (see Map 5.4-1 and Table 5.4-1) and exhibits moderate to high susceptibility to wind and water erosion. Additionally, this soil type is relatively shallow in some locations.

**Route 4-Proposed Wastewater Discharge Line**. The proposed wastewater discharge line (Route 4) is approximately 1.7 miles long and traverses five soil types as shown on Map 5.4-1 and listed in Table 5.4-1. The characteristics of these five soil-mapping units are included in Table 5.4-2. This pipeline route traverses the Riverwash soil type between approximately MP R4 0.74-0.9. The Riverwash soil occurs in areas of unstable sediments that are flooded and reworked so frequently that they support little or no vegetation.

**5.4.1.1.4 Route 5-Proposed Access Road**.The proposed access road will provide access from the Edmonston Pumping Plant road to the Pastoria Energy Facility plant site. Route 5 is approximately 0.85 mile long and traverses two soils mapping units (146, 165) as shown on Map 5.4-1 and listed in Table 5.4-1. The characteristics of these soil types are listed in Table 5.4-2 and are described in Section 5.4.1.1.1. The Hesperia sandy loam soil (146) is rated as having slight limitations for local roads and streets (SCS, 1981b). The Psamments-Xerolls complex soil (165) occurs in areas that are sometimes subject to flooding.

### 5.4.1.2 Agriculture and Prime Farmland

Land uses in the project include undeveloped, agricultural, and industrial (oil and gas development). Refer to Section 5.9 (Land Use) for more information. As discussed in Section 5.9 (Land Use), the proposed power plant site and construction laydown area are located on a parcel of land that is grazed by cattle and in a Williamson Act contract.

Portions of the fuel gas pipeline routes (3 and 3A) traverse irrigated agricultural lands. Additionally, all of the proposed project components would involve soils that qualify as potential Prime Farmland and/or soils of Statewide Importance. Table 5.4-3 summarizes areas (by project component) that qualify as potential important farmland soils. Table 5.4-3 also details whether the areas of potential important farmland soils have a developed irrigation water supply and, if so, what general crop types are present. In accordance with established NRCS criteria for the project region, areas of potential important farmland soils must normally be irrigated to actually qualify as Prime Farmland or as farmland of Statewide Importance. The plant site, construction laydown area, and Routes 1, 2, 4, and 5 do not involve areas with developed irrigation systems. However, portions of Route 3 and 3A traverse areas that qualify as Prime Farmland.

## 5.4.2 Environmental Consequences

### 5.4.2.1 Soil Resource

The assessment of project impacts to the soil resource is based on soils information presented in the published and unpublished SCS soil survey information covering the project area (SCS, 1981b; NRCS, 1999a [note: the SCS is now known as the Natural Resources Conservation Service]) and consideration of Applicant-proposed mitigation measures. Erosion will be reduced at the power plant site following development (the site will be terraced, covered with vegetation, concrete, asphalt, and/or crushed gravel, and will contain drainage systems). Based on previous consultation with CEC soil resource specialists, calculations of soil loss were not considered appropriate and thus were not performed (e.g., using the Universal Soil Loss and Chepil Wind Erosion Equations, which are typically used to quantify water and wind-induced soil loss in agricultural areas). Anticipated soil erosion during and after construction will, however, be minimized through implementation of the erosion control measures described in Section 5.4.3, Mitigation Measures. Disturbed soil areas at the plant site that are not covered by project facilities or surface material will be

reseeded with native grasses. The proposed transmission line and pipeline routes follow existing utility corridors or roadways in many areas, which will facilitate access and reduce project-related disturbances. Disturbed areas along linear facility routes will be allowed to naturally revegetate following construction activities.

The following significance criteria were used in evaluating potential soil-related environmental impacts:

- Accelerated wind or water-induced soil erosion resulting from project construction or operation

- Substantial displacement or curtailment of agricultural land uses

- Degradation of agricultural land productivity.

Impacts to the soil resource could be significant if construction activities were to occur in areas of high erosion susceptibility and the disturbed areas were left exposed and not properly stabilized and/or revegetated. Impacts to the soil resource could also be significant if the project were to alter land with special designations (e.g., Prime Farmland) to the point that the disturbed area would no longer exhibit the inherent characteristics of the special designation.

#### 5.4.2.1.1 **Pastoria Energy Facility Plant Site**.

**Introduction.** Construction of the Pastoria Energy Facility plant site will require earthwork in order to prepare the approximate 30-acre site. Excavation work will consist of the removal, storage, and/or disposal of earth, sand, gravel, vegetation, organic matter, loose rock, boulders, and debris to the lines and grades necessary for construction.

Earthwork will be required to establish the grade for this site. The estimated average final grade is approximately 1070 feet above mean sea level. The grading plan will provide a general balance between cuts and fill. Consideration for drainage and flood constraints will be incorporated into the design of the grading plan. The site is expected to be terraced in order to achieve beneficial use of, and better match, the natural topography. The site is virtually free of vegetation, limited to non-native grasses and a few low-lying shrubs. Site clearing will primarily involve removal of vegetative material to allow for proper compaction. Vegetative material will be disposed of onsite at a location where compaction is not critical. Fills will be placed in lifts and fully compacted. The site slopes to the north and west between 4 and 5 percent. Therefore, it will be necessary to construct level pads on which the equipment and buildings can be placed. This grading will require the movement of approximately 120,000 (or less) cubic yards of material. Pads will be placed at varying elevations to reduce grading requirements and to better match the existing topography. The

drainage control berms shown on the preliminary plans (refer to Figures 3.1-5 and 3.1-7) are low (less than 4 feet high) and will be constructed with less than 10,000 cubic yards of material that is included in the above earthwork total. All fills will be engineered in conformance with an approved geotechnical report and constructed under the supervision of an approved geotechnical engineer to ensure long term stability.

The only imported material expected to be used onsite is base rock for roads and structures. Such material will be clean, placed in lifts and fully compacted.

**Impact Findings.** The cut-and-fill operations at the plant site will result in alteration of the existing soil profiles. Alteration of the existing soil profiles, including mixing of soils and rock, will alter the physical, chemical and biological characteristics of the native soils and underlying geology. Clearing of the protective vegetative cover and the subsequent soil disturbance will likely result in short-term increases in water and wind erosion rates. The surficial soils at the power plant site are Hesperia sandy loam (146) and, to a lesser extent, Psamments-Xerolls complex (165). These soils have a moderate to high susceptibility to water erosion and have a moderate to low susceptibility to wind erosion. The proposed project design includes measures to stabilize fill areas and cut slopes and to control drainage. These design measures are expected to preclude geotechnical problems associated with the cut-and-fill operations, and to limit erosion/sedimentation to acceptable levels. The proposed drainage control berms are expected to control potential flooding events at the site.

Construction vehicle and equipment use on disturbed soils at the plant site will also likely increase wind erosion rates temporarily at the plant site and the adjacent construction laydown areas. Approximately 25 acres of land adjacent to the plant site (south of the plant site) will be used for construction laydown. Impacts to these areas include vegetation and soil disturbance and soil compaction. Wind and water erosion rates at the laydown area are expected to increase temporarily due to surface disturbance and compaction.

Following construction, wind and water erosion on the plant site will be reduced, because the plant site will be terraced and covered with vegetation, concrete, asphalt, and/or crushed aggregate, and drainage will be controlled through a storm drain system. Implementation of the Applicant-committed mitigation measures discussed in Section 5.4.3 is expected to limit impacts to the soil resource at the power plant site to acceptable levels, although approximately 30 acres of land will be converted to long-term industrial use.

Operation of the power plant will expose soils and vegetation to increased levels of air pollutants as discussed in Section 5.2. In summary, soil impacts associated with deposition of air pollutants are expected to be insignificant.

**5.4.2.1.2 Transmission Line Route.**

**Route 1-Proposed 230 kV Transmission Line.** The proposed route parallels existing transmission lines over the majority of its short length to the Pastoria Substation.

Construction of the transmission line will result in soil disturbance and compaction by construction vehicles and activities at transmission tower structure locations (including foundation excavations), along access roads, and at several pull and tension sites. Construction of the proposed 230 kV transmission line system is expected to disturb approximately 23 acres of land, as shown in Table 3.8-6 (Estimated Disturbed Area Summary). Minor clearing of vegetation and associated soil disturbance and compaction by construction vehicles and activities will result in short-term increased water and wind erosion rates until disturbed areas are stabilized. Increased soil compaction may decrease the ability of vegetation to reestablish following disturbance, which may result in increased erosion as well. Routine maintenance activities during the operational phase, including vehicular travel on access roads, will disturb vegetation, compact soil, and potentially increase wind and water erosion along access routes and at the transmission tower structure locations. The proposed transmission line route maximizes use of existing roads in order to limit the need to construct new access roads, thereby minimizing potential soil impacts to the extent practical. Implementation of the Applicant-committed mitigation measures specified in Section 5.4.3 is expected to limit impacts to the soil resource associated with construction and operation/ maintenance of the transmission system to acceptable levels.

A small amount of land traversed by the proposed transmission line (Route 1) will be disturbed to accommodate the transmission tower structures. Each transmission structure is expected to require 400 square feet of operational area as listed in Table 3.8-6. A total of about 0.01 acre of land is expected to be taken out of production during the operational phase by each structure to be constructed along Route 1.

In summary, no significant impacts to the soil resource associated with construction and operation of the proposed transmission line route are expected.

**5.4.2.1.3 Offsite Pipelines.** The pipelines associated with the Pastoria Energy Facility (i.e., water supply, natural gas, and wastewater discharge) will be buried, with construction right of way disturbance widths expected to be 50 feet (i.e., 6.06 acres/mile).

Construction of buried pipelines will require clearing any existing vegetation and trenching (36 inches minimum cover), prior to pipeline installation. Pipeline design (i.e., buried depth) will include consideration of calculated scour depths at stream/drainage crossings. Short-term increases in soil erosion are expected to occur due to vehicular/ equipment disturbance and compaction. The operational right of way widths are expected to be 25 feet.

With implementation of the Applicant-committed mitigation measures specified in Section 5.4.3, no significant long-term impacts to the soil resource are anticipated due to pipeline construction or operation.

**5.4.2.1.4 Route 5-Access Road.** Construction of the access road will require clearing of vegetation, grading, and road construction. The construction right of way is expected to involve about 8 acres, and about 4 acres of land is expected to be taken out of production by the access road in the long term. No significant impacts to the soil resource are expected.

### 5.4.2.2 Agriculture and Prime Farmland

The proposed Pastoria Energy Facility plant site will remove approximately 30 acres of grazing land from Williamson Act contract. This impact is considered adverse but not significant. Refer to Section 5.9 (Land Use) for more information. Neither the proposed power plant, construction laydown area, nor linear facility Routes 1, 2, 4, or 5 will impact any irrigated agricultural land uses. Construction and operation of the proposed and/or alternate fuel gas pipeline routes (3, 3A, and 3B) would all impact a minor amount of agricultural land currently used for irrigated (i.e., vineyards, orchards, etc.) crop production (see Table 5.4-3). The proposed transmission line parallels existing transmission lines over most of its length; thus the project would not introduce a new land use in the area. The land uses within the transmission line right of way would be allowed to continue following installation of the transmission line. Approximately 400 square feet of land would be taken out of production at each tower location during the operational phase. It is anticipated that approximately 8 to 9 towers per mile will be required. Any crop dusting activities in the area have already adapted to the existing transmission lines and no significant impacts on agricultural operations are anticipated.

As shown in Table 5.4-3, the construction of the proposed project components will potentially disturb some irrigated Prime Farmland along the fuel gas pipeline routes. No long-term impacts to Prime Farmland are expected since disturbed pipeline right of way areas will return to agricultural use following construction. Where practical, the Applicant intends to install the fuel gas pipeline in County road rights of way (e.g., Sebastion Road, David Road) versus adjacent agricultural lands.

## 5.4.3 Mitigation Measures

This section discusses Applicant-committed mitigation measures that will be implemented to reduce Pastoria Energy Facility project related impacts to the soil resource and to agricultural operations. A detailed Erosion Control Plan will be developed prior to project construction.

The following mitigation measures will be implemented to reduce potentially significant soils impacts to insignificant levels. An acceptable level of soil erosion, as used herein, is

defined as that amount of soil loss that would not affect (i.e., limit) the potential long-term beneficial uses of the soil as a growth medium (for areas to be revegetated/reclaimed) or adversely affect water resources due to accelerated erosion and subsequent sedimentation. Refer to Section 5.3 (Geologic Hazards and Resources) and Section 5.5 (Water Resources) for additional measures to mitigate slope instability conditions, flooding, and pipeline scour at drainage crossings.

**SOIL-1.** Prepare a detailed Erosion Control Plan prior to construction and implement the plan during and following construction. Sediment control measures may include, but are not limited to, use of mulches, protective coverings (e.g., jute netting and rip rap), installation of culverts under roadways at drainage crossings, installation of sediment detention basins, construction of water diversions along roads, and water bars along pipeline rights of way, etc.

**SOIL-2.** Conduct grading operations in compliance with the Kern County Grading Ordinance.

**SOIL-3.** Perform construction activities in accordance with the Storm Water Pollution Prevention Plan (SWPPP) and associated Monitoring Program, which will likely be required for the project in accordance with California's General Industrial Storm Water Permit for construction Sites under the U.S. EPA's NPDES Program; the SWPPP will include erosion control measures, including Best Management Practices (BMPs), to reduce erosion and sedimentation.

**SOIL-4.** Stabilize disturbed areas that will not be covered with surface structures (e.g., buildings or pavement) following grading and/or cut-and-fill operations. In areas to be disturbed or excavated along pipeline routes and where vegetation is present prior to construction, topsoil should be selectively salvaged and replaced. With the exception of the plant site and construction laydown area, no seeding or irrigation is proposed. According to the SCS/NRCS, Bakersfield Field Office (1994), enough seed is typically present in Kern County area soils to allow natural revegetation to occur, assuming conditions are appropriate (e.g., pH, salinity levels, and moisture regime).

**SOIL-5.** Limit soil erosion/dust generation by wetting active construction areas with water (including roads) or by applying commercial dust palliatives (soil binders).

**SOIL-6.** Conduct post-construction monitoring of areas that were disturbed during the construction phase, concentrating on steep slope areas or other erosion-prone areas; implement corrective measures in areas that do not respond adequately to initial stabilization techniques or in areas where accelerated erosion is occurring.

The post-construction monitoring plan will be prepared prior to completion of the linears construction phase.

**AG-1.** In agricultural areas, construct tower structures adjacent to, and parallel with, existing structures to minimize land use conflicts. Where practical, construction activities will be timed to avoid impacts to crop production and/or harvesting operations in cultivated areas.

**AG-2** Selectively salvage and replace topsoil in all agricultural areas (i.e., cropland, vineyards, orchards, etc.) where underground pipelines are to be installed via trenching.

With implementation of the mitigation measures listed above, no significant unavoidable adverse impacts to the soils resource, agriculture, or Prime Farmland are anticipated due to construction and operation of the Pastoria Energy Facility project.

### 5.4.4 LORS Compliance

The Pastoria Energy Facility project will comply with applicable LORS related to soil conservation and agricultural land conversion issues. Refer to Section 7.5.4 for more information.

### 5.4.5 References

U.S. Department of Agriculture, Soil Conservation Service (SCS) 1981a. Land Resource Regions and Major Land Resource Areas of the Unites States. Handbook 296.

1981b. Soil Survey of Kern County, Southeastern Part.

U.S. Department of Agriculture, Natural Resource Conservation Service. 1999a. Unpublished excerpts from Southwestern Kern County Soil Survey.

1999b. Kern County Prime Farmland Soils and Soils of Statewide Importance (12/5/80 Lists of qualifying soils and criteria; provided by NRCS, Bakersfield Field Office, November, 1999).

**TABLE 5.4-1**

**SOIL MAPPING UNITS IDENTIFIED FOR THE PASTORIA ENERGY FACILITY PROJECT**

| Project Component[1] | Approximate Acreage and/or Mileposts[1] | Map Symbol[2] | Mapping Unit Name[2] |
|---|---|---|---|
| Power Plant Site | 22 acres | 146 | Hesperia Sandy Loam |
| | 8 acres | 165 | Psamments-Xerolls Complex |
| Construction Laydown Area | 16 acres | 146 | Hesperia Sandy Loam |
| | 9 acres | 165 | Psamments-Xerolls Complex |
| Route 1; Proposed 230 kV Transmission Line | MP R1-0.0-1.38 | 146 | Hesperia Sandy Loam |
| Route 2: Proposed Water Supply Line | MP R2-0.0-0.05 | 146 | Hesperia Sandy Loam |
| Route 3: Proposed Fuel Gas Pipeline | MP R3-0.0-0.07 | 146 | Hesperia Sandy Loam |
| | MP R3-0.07-0.43 | 145 | Hesperia Sandy Loam |
| | MP R3-0.43-0.48 | 165 | Psamments-Xerolls Complex |
| | MP R3-0.48-0.96 | 146 | Hesperia Sandy Loam |
| | MP R3-0.96-1.34 | 162 | Pleito-Chanac Sandy Clay Loams |
| | MP R3-1.34-2.16 | 182 | Tehachapi Cobbly Sandy Clay Loam, Warm |
| | MP R3-2.16-2.6 | 162 | Pleito-Chanac Sandy Clay Loams |
| | MP R3-2.6-2.79 | 159 | Pleito Sandy Clay Loam |
| | MP R3-2.79-3.38 | 162 | Pleito-Chanac Sandy Clay Loams |
| | MP R3-3.38-5.06 | 182 | Tehachapi Cobbly Sandy Clay Loam, Warm |
| | MP R3-5.06-5.45 | 109 | Arvin Sandy Loam |

**TABLE 5.4-1**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Mileposts[1] | Map Symbol[2] | Mapping Unit Name[2] |
|---|---|---|---|
| Route 3: Proposed Fuel Gas Pipeline (Continued) | | | |
| | MP R3-5.45-5.55 | 162 | Pleito-Chanac Sandy Clay Loams |
| | MP R3-5.55-6.2 | 109 | Arvin Sandy Loam |
| | MP R3-6.2-6.65 | 111 | Arvin Stony Sandy Loam |
| | MP R3-6.65-6.9 | 182 | Tehachapi Cobbly Sandy Clay Loam, Warm |
| | MP R3-6.9-6.98 | 111 | Arvin Stony Sandy Loam |
| | MP R3-6.98-7.8 | 120 | Chanac-Pleito Complex |
| | MP R3-7.8-8.28 | 111 | Arvin Stony Sandy Loam |
| | MP R3-8.28-8.5 | 161 | Pleito-Chanac Sandy Clay Loams |
| | MP R3-8.5-8.83 | 111 | Arvin Stony Sandy Loam |
| | MP R3-8.83-10.9 | 144 | Hesperia Sandy Loam |
| | MP R3-10.9-11.65 | PxA | Vineland-Bakersfield Complex |
| Route 3A: Alternate Fuel Gas Pipeline | MP R3A-0.0-8.27 | See Rte. 3 | |
| | MP R3A-8.27-9.33 | 161 | Pleito-Chanac Sandy Clay Loams |
| | MP R3A-9.33-9.84 | 119 | Chanac-Pleito Complex |
| | MP R3A-9.84-10.18 | 161 | Pleito-Chanac Sandy Clay Loams |
| | MP R3A-10.18-10.33 | 119 | Chanac-Pleito Complex |
| | MP R3A-10.33-10.85 | 161 | Pleito-Chanac Sandy Clay Loams |
| | MP R3A-10.85-11.2 | 119 | Chanac-Pleito Complex |
| | MP R3A-11.2-12.52 | 201 | Wasioja Sandy Loam |
| | MP R3A-12.52-12.7 | 144 | Hesperia Sandy Loam |
| | MP R3A-12.7-12.88 | 201 | Wasioja Sandy Loam |
| | MP R3A-12.88-12.98 | 144 | Hesperia Sandy Loam |

**TABLE 5.4-1**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Mileposts[1] | Map Symbol[2] | Mapping Unit Name[2] |
|---|---|---|---|
| | MP R3A-12.98-13.27 | 201 | Wasioja Sandy Loam |
| Route 3A: Alternate Fuel Gas Pipeline (Continued) | MP R3A-13.27-13.5 | 165 | Psamments-Xerolls Complex |
| | MP R3A-13.5-13.8 | PxA | Vineland-Bakersfield Complex |
| Route 3B: Alternate Fuel Gas Pipeline | MP R3B-0.0-8.27 | See Rte. 3 | |
| | MP R3B-8.27-11.9 | See Rte. 3A | |
| | MP R3B-11.9-14.14 | 201 | Wasioja Sandy Loam |
| | MP R3B-14.14-15.0 | 165 | Psamments-Xerolls Complex, nearly level |
| | MP R3B-15.0-15.08 | 144 | Hesperia Sandy Loam |
| | MP R3B-15.08-15.2 | 139 | Haploxerolls, Hilly |
| | MP R3B-15.2-15.27 | 144 | Hesperia Sandy Loam |
| | MP R3B-15.27-15.35 | 139 | Haploxerolls, Hilly |
| | MP R3B-15.35-15.83 | 144 | Hesperia Sandy Loam |
| | MP R3B-15.83-15.87 | 173 | Rosamond Variant Sandy Loam |
| | MP R3B-15.87-16.18 | 139 | Haploxerolls, Hilly |
| | MP R3B-16.18-16.43 | 120 | Chanac-Pleito Complex |
| | MP R3B-16.43-16.72 | 173 | Rosamond Variant Sandy Loam |
| | MP R3B-16.72-16.8 | 165 | Psamments-Xerolls Complex, nearly level |
| | MP R3B-16.8-17.29 | 173 | Rosamond Variant Sandy Loam |
| | MP R3B-17.29-17.55 | 127 | DiGiorgio Sandy Clay Loam |
| | MP R3B-17.55-17.98 | 109 | Arvin Sandy Loam |
| | MP R3B-17.98-18.2 | 165 | Psamments-Xerolls Complex, nearly level |

**TABLE 5.4-1**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Mileposts[1] | Map Symbol[2] | Mapping Unit Name[2] |
|---|---|---|---|
| | MP R3B-18.2-18.5 | 109 | Arvin Sandy Loam |
| Route 4: Proposed Wastewater Discharge Line | MP R4-0.0-0.18 | 146 | Hesperia Sandy Loam |
| | MP R4-018-0.74 | GnB | Pleitito-Laval Complex |
| | MP R4-0.74-0.9 | Rw | Riverwash |
| | MP R4-0.9-1.32 | WaB | Cuyama Sandy Loam |
| | MP R4-1.32-1.7 | HbA | Guijarral Sandy Loam |
| Route 5: Proposed Access Road | MP R5-0.0-0.28 | 165 | Psamments-Xerolls Complex, nearly level |
| | MP R5-0.28-0.85 | 146 | Hesperia Sandy Loam |

[1]Refer to Map 5.4-1 for locations.
[2]Sources: SCS, 1981b, and NRCS, 1999a.

**TABLE 5.4-2**

**SOIL MAPPING UNITS**
**DESCRIPTION AND PROPERTIES[1, 2, 3]**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| 109 | **Arvin Sandy Loam**. Very deep, well-drained, sandy loam soils formed on alluvial fans and stream flood plains in mixed alluvium from granitic sources. | 2-5 | >60 | Moderate | Moderate | Moderately rapid permeability. Low shrink-swell potential. Capability Class (CC): IVe-1 (17) (non-irrigated); IIe-1(17) (irrigated) |
| 111 | **Arvin Stony Sandy Loam**. Very deep, well-drained, stony sandy loam soils formed on alluvial fans and stream terraces in mixed alluvium from granitic rock. Stony sandy loam to about 21 inches; underlain by cobbly sandy loam soil to a depth of greater than 60 inches. | 5-9 | >60 | Moderate | Moderate | Moderately rapid permeability. Low shrink-swell potential. CC: Ivs-1(17) (non-irrigated). |
| 119 | **Chanac-Pleito Complex**. Very deep, well-drained, sandy clay loam soils formed on old terraces in alluvial material from weathered conglomerate material. These soils are underlain by coarse sandy loams and gravelly sandy clay loams. | 9-30 | >60 | Moderate | Moderate | Moderately slow to slow permeability. Moderate shrink-swell potential. CC: 1Ve-1(18) (non-irrigated). |

**TABLE 5.4-2**

**(Continued)**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| 120 | **Chanac-Pleito Complex**. Very deep, well drained, sandy clay loam soils formed on old terraces in slightly consolidated alluvial material. These soils are underlain by coarse sandy loam and gravelly sandy clay loam soils. | 30-50 | >60 | Moderate | Moderate | Moderately slow to slow permeability. Moderate shrink-swell potential. CC: VIe (18) (non-irrigated). |
| 127 | **DiGiorgio Sandy Clay Loam**. Very deep, well-drained, sandy clay loam soils formed on flood plains and basins in alluvial material derived from granitic rock. | 0-2 | >60 | Moderate | Low | Moderately slow permeability. Moderate shrink-swell potential CC: 1(17) (irrigated); IVe-1(17) (non-irrigated). |
| 139 | **Haploxerolls, Hilly**. Shallow to deep, well-drained, coarse textured soils formed on dissected terraces and alluvial fans in consolidated alluvial material weathered from mixed sources. | 15-50 | 20-60+ | Moderate to High | Moderate to High | Rapid permeability. CC: VIe (18) (non-irrigated). |
| 144 | **Hesperia Sandy Loam**. Very deep, well drained, sandy loam soil formed on alluvial fans from alluvial material derived from granitic rock. | 0-2 | >60 | Moderate | Moderate | Moderately rapid permeability. Low shrink-swell potential. CC: IIs-4(17) (irrigated); IVe-1(17) (non-irrigated). |

**TABLE 5.4-2**

**(Continued)**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| 146 | **Hesperia Sandy Loam**. Very deep, well-drained, sandy loam soil formed on alluvial fans from alluvial material derived from granitic rock. | 0-2 | >60 | Moderate | Moderate | Moderately rapid permeability. Low shrink-swell potential. CC: IIIe-1(17) (irrigated); IVe-1(17) (non-irrigated). |
| 159 | **Pleito Sandy Clay Loam**. Very deep, well-drained, sandy clay loam soils on alluvial fans formed in alluvial material derived from granitic rock. Underlain in places by clay loam soils. | 2-5 | >60 | Moderate | Moderate | Slow permeability. Moderate shrink-swell potential. CC: IVe-1(18) (non-irrigated); IIe (18) (irrigated). |
| 161 | **Pleito-Chanac Sandy Clay Loams**. Very deep, well drained sandy clay loam soils formed on old terraces from slightly consolidated alluvial material. These soils are underlain by gravelly sandy clay loam and clay loam soils. | 5-9 | >60 | Moderate | Moderate | Slow to moderately slow permeability. Moderate shrink-swell potential. CC: IVe-1(18) (non-irrigated); IIIe-1(18) (irrigated). |
| 162 | **Pleito-Chanac Sandy Clay Loams**. Very deep, well drained sandy clay loam soils formed on old terraces from slightly consolidated alluvial material. These soils are underlain by gravelly sandy clay loam and clay loam soils. | 15-30 | >60 | Moderate | Moderate | Slow to moderately slow permeability. Moderate shrink-swell potential. CC: IVe-1(18) (non-irrigated). |

**TABLE 5.4-2**

**(Continued)**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| 165 | **Psamments-Xerolls Complex, Nearly Level**. Very deep, excessively to moderately well drained, coarse and moderately coarse surface soils underlain by stratified gravelly coarse subsoils. These soils occur on recent and old stream bottoms. | 0-2 | >60 | High | Low | Rapid to very rapid permeability. Flooding is common on portions of this soil type. CC: VIs (17, 18) (non-irrigated). |
| 173 | **Rosamond Variant Sandy Loam**. Very deep, well-drained, sandy loam and coarse sandy loam soils formed on alluvial fans and basin drainageways in alluvial material from granitic rock. | 5-15 | >60 | Moderate | Low | Moderately slow permeability. Low to moderate shrink-swell potential. CC: IVe-I(18) (non-irrigated) |
| 182 | **Tehachapi Cobbly Sandy Clay Loam Warm**. Very deep, well-drained, cobbly sandy clay loam soils formed on old alluvial fans and stream terraces in alluvial material derived from granitic rock. | 2-9 | >60 | Moderate | Low | Slow permeability. Low to moderate shrink-swell potential. CC: IVe-1(17) (non-irrigated); IIIe-1(17) (irrigated). |

**TABLE 5.4-2**

**(Continued)**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| 201 | **Wasioja Sandy Loam**. Very deep, well drained, sandy loam soils formed on stream terraces in alluvial material from mixed sources, subsoil includes loam and sandy loams. | 2-9 | >60 | Moderate | Moderate | Moderately slow permeability. Low to moderate shrink-swell potential. CC: IVe-1(17) (non-irrigated); IIe-I(17) (irrigated). |
| GnB | **Pleitito-Laval Complex.** Very deep, well drained, sandy loam soils formed on stream terraces in alluvium from granitic and sedimentary rocks. Underlain by stratified loam, gravelly sand, and sandy loams. | 1-5 | >60 | Low | Moderate | Moderately rapid permeability. Low shrink-swell potential. Frequently flooded. CC: IVe-4 (irrigated); VIe (non-irrigated). |
| HbA | **Guijarral Sandy Loam**. Very deep, well drained, sandy loam soils on fan terraces formed in alluvium weathered from mixed rock sources. Underlain by gravelly sandy loams. | 0-2 | >60 | Moderate | Low | Moderately rapid permeability. Low shrink-swell potential. CC: IIs-4 (irrigated); VIs (non-irrigated). |
| PxA | **Vineland-Bakersfield Complex**. Very deep, somewhat excessively drained, loamy sand soils on floodplains formed in alluvium weathered from granitic sources. Underlying soils include fine sandy loams, loams and silt loams. | 0-1 | >60 | Moderate | High | Moderate permeability. Low shrink-swell potential. CC: IIIs-4 (irrigated); VIIe (non-irrigated). |

**TABLE 5.4-2**

**(Continued)**

| Map Symbol | Map Unit Name and Description | Slope (%) | Depth to Bedrock (inches) | Water Erosion Hazard[4] | Wind Erosion Hazard[5] | Comments |
|---|---|---|---|---|---|---|
| Rw | **Riverwash**. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked so frequently that they support little or no vegetation. | NA[6] | NA[6] | NA[6] | NA[6] | CC: VIIIw. |
| WaB | **Cuyama Sandy Loan**. Very deep, well drained, sandy loam soils formed on fan terraces in alluvium weathered from mixed rock sources. Underlying soils include sandy clay loams and gravelly sandy loams. | 2-5 | >60 | Moderate | Moderate | Moderately slow permeability. Low shrink-swell potential. CC: IIe-1 (irrigated); IVe (non-irrigated). |

[1] Refer to Map 5-4-1 for locations of soil mapping units by project component.
[2] Refer to Table 5.4-1 for the approximate acreage/mileposts of identified soils by project component.
[3] Source: SCS, 1981b. (Soil Survey of Kern County, Southeastern Part), and NRCS, 1999a.
[4] Based on "K" factor values where: low = <0.2; moderate = 0.2-0.39; and high ≥ 0.4.
[5] Based on WEG classes where: high = 1-2; moderate = 3-4; and low = 5-8.
[6] NA: not available.

**TABLE 5.4-3**

**POTENTIAL PRIME FARMLAND SOILS PRESENT IN THE PASTORIA ENERGY FACILITY PROJECT AREA**

| Project Component[1] | Approximate Acreage and/or Milepost[1] | Soil Mapping Unit[2] | Qualify As Potential Prime Farmland[2] | Qualify As Potential Statewide Importance[2] | Comments |
|---|---|---|---|---|---|
| **Power Plant Site** | 22 acres | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |
| **Construction Laydown Area** | 16 acres | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |
| **Route 1-Proposed 230 kV Transmission Line** | R1 0.0-1.38 | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |
| **Route 2-Proposed Water Supply Line** | R2 0.0-0.05 | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |
| **Route 3-Proposed Fuel Gas Pipeline** | R3 0.0-0.07 | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |

**TABLE 5.4-3**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Milepost[1] | Soil Mapping Unit[2] | Qualify As Potential | | Comments |
|---|---|---|---|---|---|
| | | | Prime Farmland[2] | Statewide Importance[2] | |
| **Route 3 (Continued)** | R3 0.48-0.96 | 146-Hesperia Sandy Loam | No | Yes | No developed irrigation water supply, thus, does not meet actual criteria for "Statewide Importance" soils. |
| | R3 5.06-5.45 | 109-Arvin Sandy Loam | Yes | No | No developed irrigation system, thus not actual Prime Farmland. |
| | R3 5.55-6.2 | 109-Arvin Sandy Loam | Yes | No | Irrigated orchards--qualifies as Prime Farmland. |
| | R3 8.28-8.5 | 161-Pleito-Chanac Sandy Loam | Yes | No | Approximately half (western portion) is irrigated orchards, which qualify as Prime Farmland. However, Applicant intends to construct pipeline in County road (Sebastian Road) right of way. |
| | R3 8.83-10.9 | 144-Hesperia Sandy Loam | Yes | No | Intermittent irrigated vineyards and orchards which qualify as Prime Farmland. However, Applicant intends to construct pipeline in County road right of way. |

**TABLE 5.4-3**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Milepost[1] | Soil Mapping Unit[2] | Qualify As Potential Prime Farmland[2] | Qualify As Potential Statewide Importance[2] | Comments |
|---|---|---|---|---|---|
| **Route 3A-Alternate Fuel Gas Pipeline** | MP R3A 0.0-8.27 See Route 3 | | | | |
| | R3A 11.2-12.52 | 201-Wasioja Sandy Loam | Yes | No | Portion along south side of David Road between about MP R3A 11.9-12.4 includes irrigated orchards which qualify as Prime Farmland. However, Applicant plans to construct pipeline in County road right of way. |
| | R3A 12.52-12.7 | 144-Hesperia Sandy Loam | Yes | No | Includes irrigated farmland which qualifies as Prime Farmland. However, Applicant plans to construct pipeline in County road right of way. |
| | R3A 12.7-12.88 | 201-Wasioja Sandy Loam | Yes | No | Includes irrigated farmland which qualifies as Prime Farmland. However, Applicant plans to construct pipeline in County road right of way. |

**TABLE 5.4-3**

**(Continued)**

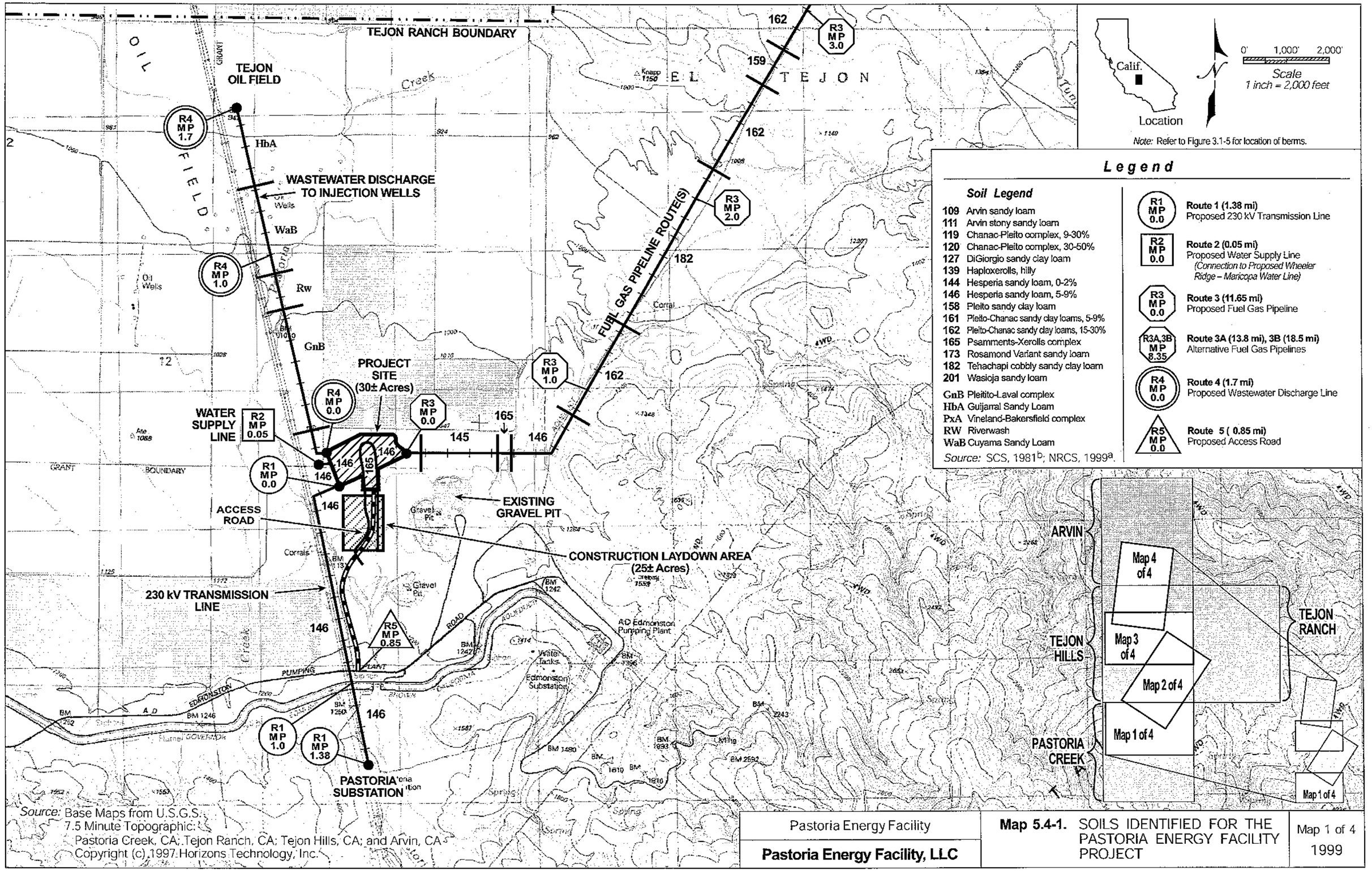
| Project Component[1] | Approximate Acreage and/or Milepost[1] | Soil Mapping Unit[2] | Qualify As Potential Prime Farmland[2] | Qualify As Potential Statewide Importance[2] | Comments |
|---|---|---|---|---|---|
| **Route 3A (Continued)** | R3A 12.88-12.98 | 144-Hesperia Sandy Loam | Yes | No | Includes irrigated farmland which qualifies as Prime Farmland. However, Applicant plans to construct pipeline in County road right of way. |
| | R3A 12.98-13.27 | 201-Wasioja Sandy Loam | Yes | No | Includes irrigated farmland which qualifies as Prime Farmland. However, Applicant plans to construct pipeline in County road right of way. |
| **Route 3B-Alternate Fuel Gas Pipeline** | MP R3B 0.0-8.27 See Route 3 | | | | |
| | MP R3B 8.27-11.9 See Route 3A | | | | |
| **Route 4-Proposed Wastewater Discharge Pipeline** | MP R4 0.0-0.18 | 146-Hesperia Sandy Loam | Yes | No | No developed irrigation water supply, thus not actual Prime Farmland. |
| | MP R4 0.18-0.74 | GnB-Pleitito-Laval Complex | Yes | No | No developed irrigation water supply, thus not actual Prime Farmland. |

**TABLE 5.4-3**

**(Continued)**

| Project Component[1] | Approximate Acreage and/or Milepost[1] | Soil Mapping Unit[2] | Qualify As Potential | | Comments |
|---|---|---|---|---|---|
| | | | Prime Farmland[2] | Statewide Importance[2] | |
| **Route 4 (Continued)** | MP R4 0.9-1.32 | WaB-Cuyama Sandy Loam | Yes | No | No developed irrigation water supply, thus not actual Prime Farmland. |
| | MP R4 1.32-1.7 | HbA-Guijarral Sandy Loam | Yes | No | No developed irrigation water supply, thus not actual Prime Farmland. |
| **Route 5-Proposed Access Road** | R5 0.28-0.85 | 146-Hesperia Sandy Loam | Yes | No | No developed irrigation water supply, thus not actual Prime Farmland. |

[1]Refer to Map 5.4-1 and Table 5.4-1 for locations of soil mapping units. Only project areas that potentially qualify as Prime or Statewide Importance Farmlands are listed.
[2]Source: NRCS, 1999b (12/5/80 Lists and Criteria provided by NRCS in 11/99).




*Note:* Refer to Figure 3.1-5 for location of berms.

## Legend

### Soil Legend

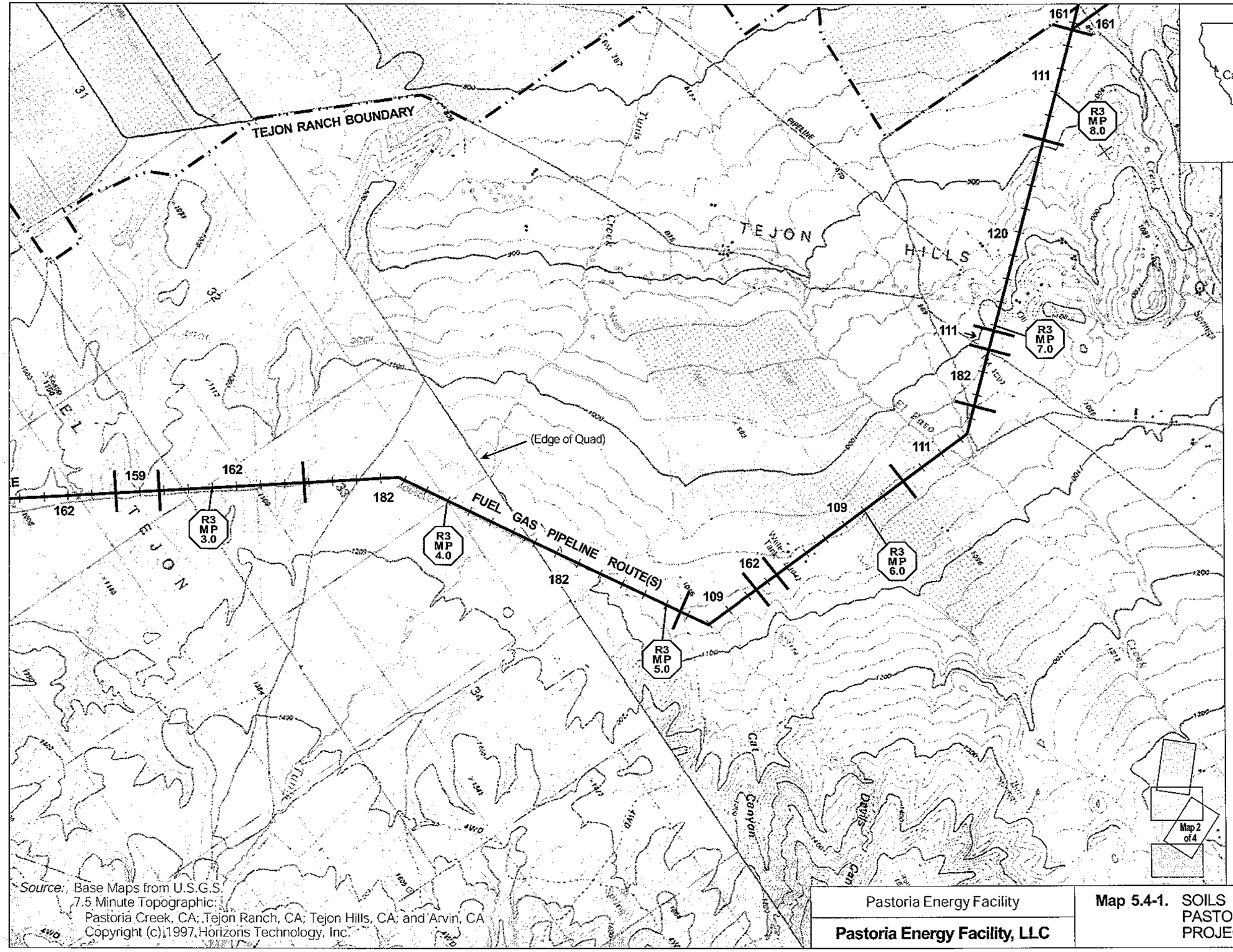
| | |
|---|---|
| 109 | Arvin sandy loam |
| 111 | Arvin stony sandy loam |
| 119 | Chanac-Pleito complex, 9-30% |
| 120 | Chanac-Pleito complex, 30-50% |
| 127 | DiGiorgio sandy clay loam |
| 139 | Haploxerolls, hilly |
| 144 | Hesperia sandy loam, 0-2% |
| 146 | Hesperia sandy loam, 5-9% |
| 158 | Pleito sandy clay loam |
| 161 | Pleito-Chanac sandy clay loams, 5-9% |
| 162 | Pleito-Chanac sandy clay loams, 15-30% |
| 165 | Psamments-Xerolls complex |
| 173 | Rosamond Variant sandy loam |
| 182 | Tehachapi cobbly sandy clay loam |
| 201 | Wasioja sandy loam |
| GnB | Pleitito-Laval complex |
| HbA | Guijarral Sandy Loam |
| PxA | Vineland-Bakersfield complex |
| RW | Riverwash |
| WaB | Cuyama Sandy Loam |

*Source:* SCS, 1981[b]; NRCS, 1999[a].

- **R1 MP 0.0** — **Route 1 (1.38 mi)** Proposed 230 kV Transmission Line
- **R2 MP 0.0** — **Route 2 (0.05 mi)** Proposed Water Supply Line *(Connection to Proposed Wheeler Ridge – Maricopa Water Line)*
- **R3 MP 0.0** — **Route 3 (11.65 mi)** Proposed Fuel Gas Pipeline
- **R3A,3B MP 8.35** — **Route 3A (13.8 mi), 3B (18.5 mi)** Alternative Fuel Gas Pipelines
- **R4 MP 0.0** — **Route 4 (1.7 mi)** Proposed Wastewater Discharge Line
- **R5 MP 0.0** — **Route 5 ( 0.85 mi)** Proposed Access Road

*Source:* Base Maps from U.S.G.S. 7.5 Minute Topographic: Pastoria Creek, CA; Tejon Ranch, CA; Tejon Hills, CA; and Arvin, CA


| | | |
|---|---|---|
| Pastoria Energy Facility<br>**Pastoria Energy Facility, LLC** | **Map 5.4-1.** SOILS IDENTIFIED FOR THE PASTORIA ENERGY FACILITY PROJECT | Map 1 of 4<br>1999 |





0' 1,000' 2,000'

*Scale*
*1 inch = 2,000 feet*

## *Legend*

**R1 MP 0.0** **Route 1 (1.38 mi)**
Proposed 230 kV Transmission Line

**R2 MP 0.0** **Route 2 (0.05 mi)**
Proposed Water Supply Line
*(Connection to Proposed Wheeler Ridge – Maricopa Water Line)*

**R3 MP 0.0** **Route 3 (11.65 mi)**
Proposed Fuel Gas Pipeline

**R3A,3B MP 8.35** **Route 3A (13.8 mi), 3B (18.5 mi)**
Alternative Fuel Gas Pipelines

**R4 MP 0.0** **Route 4 (1.7 mi)**
Proposed Wastewater Discharge Line

**R5 MP 0.0** **Route 5 (0.85 mi)**
Proposed Access Road

### *Soil Legend*

**109** Arvin sandy loam
**111** Arvin stony sandy loam
**119** Chanac-Pleito complex, 9-30%
**120** Chanac-Pleito complex, 30-50%
**127** DiGiorgio sandy clay loam
**139** Haploxerolls, hilly
**144** Hesperia sandy loam, 0-2%
**146** Hesperia sandy loam, 5-9%
**158** Pleito sandy clay loam
**161** Pleito-Chanac sandy clay loams, 5-9%
**162** Pleito-Chanac sandy clay loams, 15-30%
**165** Psamments-Xerolls complex
**173** Rosamond Variant sandy loam
**182** Tehachapi cobbly sandy clay loam
**201** Wasioja sandy loam

**GnB** Pleitito-Laval complex
**HbA** Guijarral Sandy Loam
**PxA** Vineland-Bakersfield complex
**RW** Riverwash
**WaB** Cuyama Sandy Loam

*Source:* SCS, 1981[b]; NRCS, 1999[a].

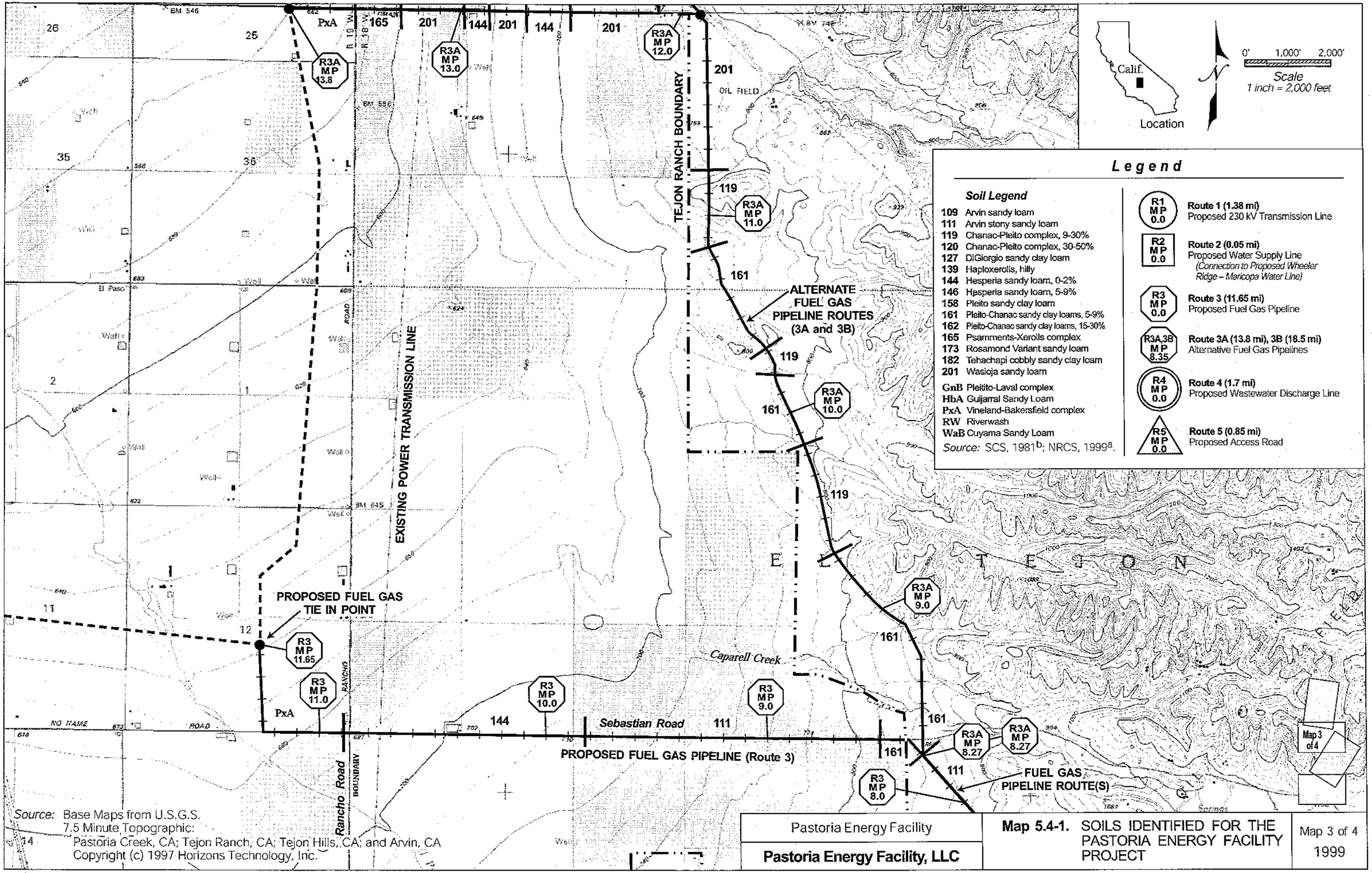
*Source:* Base Maps from U.S.G.S. 7.5 Minute Topographic: Pastoria Creek, CA; Tejon Ranch, CA; Tejon Hills, CA; and Arvin, CA


Pastoria Energy Facility

**Pastoria Energy Facility, LLC**

**Map 5.4-1.** SOILS IDENTIFIED FOR THE PASTORIA ENERGY FACILITY PROJECT

Map 2 of 4
1999


Calif.
Location
0' 1,000' 2,000'
Scale
1 inch = 2,000 feet
Legend
Soil Legend
109 Arvin sandy loam
111 Arvin stony sandy loam
119 Chanac-Pleito complex, 9-30%
120 Chanac-Pleito complex, 30-50%
127 DiGiorgio sandy clay loam
139 Haploxerolls, hilly
144 Hesperia sandy loam, 0-2%
146 Hesperia sandy loam, 5-9%
158 Pleito sandy clay loam
161 Pleito-Chanac sandy clay loams, 5-9%
162 Pleito-Chanac sandy clay loams, 15-30%
165 Psamments-Xerolls complex
173 Rosamond Variant sandy loam
182 Tehachapi cobbly sandy clay loam
201 Wasioja sandy loam
GnB Pleitito-Laval complex
HbA Guijarral Sandy Loam
PxA Vineland-Bakersfield complex
RW Riverwash
WaB Cuyama Sandy Loam
Source: SCS, 1981b; NRCS, 1999a.
R1 MP 0.0 Route 1 (1.38 mi) Proposed 230 kV Transmission Line
R2 MP 0.0 Route 2 (0.05 mi) Proposed Water Supply Line (Connection to Proposed Wheeler Ridge – Maricopa Water Line)
R3 MP 0.0 Route 3 (11.65 mi) Proposed Fuel Gas Pipeline
R3A,3B MP 8.35 Route 3A (13.8 mi), 3B (18.5 mi) Alternative Fuel Gas Pipelines
R4 MP 0.0 Route 4 (1.7 mi) Proposed Wastewater Discharge Line
R5 MP 0.0 Route 5 (0.85 mi) Proposed Access Road
R3A MP 13.8
R3A MP 13.0
R3A MP 12.0
R3A MP 11.0
R3A MP 10.0
R3A MP 9.0
R3A MP 8.27
R3 MP 11.65
R3 MP 11.0
R3 MP 10.0
R3 MP 9.0
R3 MP 8.0
TEJON RANCH BOUNDARY
EXISTING POWER TRANSMISSION LINE
ALTERNATE FUEL GAS PIPELINE ROUTES (3A and 3B)
PROPOSED FUEL GAS TIE IN POINT
PROPOSED FUEL GAS PIPELINE (Route 3)
FUEL GAS PIPELINE ROUTE(S)
Caparell Creek
Sebastian Road
NO NAME ROAD
Rancho Road
OIL FIELD
Map 3 of 4
Source: Base Maps from U.S.G.S. 7.5 Minute Topographic: Pastoria Creek, CA; Tejon Ranch, CA; Tejon Hills, CA; and Arvin, CA
Copyright (c) 1997 Horizons Technology, Inc.
Pastoria Energy Facility
Pastoria Energy Facility, LLC
Map 5.4-1. SOILS IDENTIFIED FOR THE PASTORIA ENERGY FACILITY PROJECT
Map 3 of 4
1999

EXISTING 42" FUEL GAS LINE

ALTERNATE FUEL GAS PIPELINE (Route 3A)

ALTERNATE FUEL GAS PIPELINE (Route 3B)

TEJON RANCH BOUNDARY

R3A MP 13.8 PxA

R3A MP 13.0

R3A MP 12.0

R3A MP 11.9

R3B MP 14.0

R3B MP 13.0

R3B MP 12.0

R3B MP 11.9

R3B MP 15.0

R3B MP 16.0

R3B MP 17.0

R3B MP 18.0

R3B MP 18.5

144 139 144 139 144 165 201 144 201 201 201 144 173 139 120 173 165 173 127 109 165 109

Calif. Location

0' 1,000' 2,000'

Scale 1 inch = 2,000 feet

Map 4 of 4

## Legend

### Soil Legend

| | |
|---|---|
| 109 | Arvin sandy loam |
| 111 | Arvin stony sandy loam |
| 119 | Chanac-Pleito complex, 9-30% |
| 120 | Chanac-Pleito complex, 30-50% |
| 127 | DiGiorgio sandy clay loam |
| 139 | Haploxerolls, hilly |
| 144 | Hesperia sandy loam, 0-2% |
| 146 | Hesperia sandy loam, 5-9% |
| 158 | Pleito sandy clay loam |
| 161 | Pleito-Chanac sandy clay loams, 5-9% |
| 162 | Pleito-Chanac sandy clay loams, 15-30% |
| 165 | Psamments-Xerolls complex |
| 173 | Rosamond Variant sandy loam |
| 182 | Tehachapi cobbly sandy clay loam |
| 201 | Wasioja sandy loam |
| GnB | Pleitito-Laval complex |
| HbA | Guijarral Sandy Loam |
| PxA | Vineland-Bakersfield complex |
| RW | Riverwash |
| WaB | Cuyama Sandy Loam |

*Source:* SCS, 1981[b]; NRCS, 1999[a].

R1 MP 0.0 — **Route 1 (1.38 mi)** Proposed 230 kV Transmission Line

R2 MP 0.0 — **Route 2 (0.05 mi)** Proposed Water Supply Line *(Connection to Proposed Wheeler Ridge – Maricopa Water Line)*

R3 MP 0.0 — **Route 3 (11.65 mi)** Proposed Fuel Gas Pipeline

R3A,3B MP 8.35 — **Route 3A (13.8 mi), 3B (18.5 mi)** Alternative Fuel Gas Pipelines

R4 MP 0.0 — **Route 4 (1.7 mi)** Proposed Wastewater Discharge Line

R5 MP 0.0 — **Route 5 (0.85 mi)** Proposed Access Road

*Source:* Base Maps from U.S.G.S. 7.5 Minute Topographic: Pastoria Creek, CA; Tejon Ranch, CA; Tejon Hills, CA; and Arvin, CA.



Pastoria Energy Facility

**Pastoria Energy Facility, LLC**

**Map 5.4-1.** SOILS IDENTIFIED FOR THE PASTORIA ENERGY FACILITY PROJECT

Map 4 of 4

1999